

# Appendix A

## Dataset for the Refinement Process

APPENDIX A

DATASET FOR THE REFINEMENT PROCESS  
FORMER PLAINWELL, INC. MILL PROPERTY  
PLAINWELL, MICHIGAN

Redevelopment Area	Residential Area 1							
Sample Location	SB-101	SB-102	SB-103	SB-104	SB-106	SB-107	SB-116	SB-118
Sample Date	1/18/2010	1/20/2010	1/20/2010	1/21/2010	1/18/2010	1/18/2010	1/19/2010	1/20/2010
Sample Depth	(0-1) ft BGS							
<b>Constituent</b>								
<b>Volatile Organic Compounds (VOCs)</b>								
Acetone	R	R	R	R	R	R	R	0.82 J
Isopropylbenzene	0.25 U	0.60 U	0.25 U	0.26 U	0.25 U	0.26 U	0.25 U	0.050 J
<b>BTEX</b>								
Benzene	0.062 U	0.15 U	0.061 U	0.0090 J	0.062 U	0.065 U	0.061 U	0.037 J
Toluene	0.062 U	0.37	0.061 U	0.092	0.062 U	0.023 J	0.061 U	0.67
o-Xylene	0.062 U	0.31	0.061 U	0.049 J	0.062 U	0.065 U	0.061 U	0.57
m&p-Xylene	0.062 U	0.51	0.061 U	0.073	0.062 U	0.065 U	0.061 U	0.82
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)</b>								
bis(2-Ethylhexyl)phthalate (DEHP)	0.35 U	0.4 U	0.34 U	0.14 J	0.33 U	0.32 U	0.33 U	0.041 J
Carbazole	0.35 U	0.4 U	0.34 U	0.36 U	0.33 U	0.32 U	0.33 U	0.38 U
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)</b>								
<b>HMW PAHs</b>	1.05	1.2	1.02	0.622	0.99	0.96	0.99	0.558
Benzo(a)anthracene	0.35 U	0.4 U	0.34 U	0.067 J	0.33 U	0.32 U	0.33 U	0.05 J
Benzo(a)pyrene	0.35 U	0.4 U	0.34 U	0.085 J	0.33 U	0.32 U	0.33 U	0.082 J
Chrysene	0.35 U	0.4 U	0.34 U	0.08 J	0.33 U	0.32 U	0.33 U	0.067 J
Dibenz(a,h)anthracene	0.35 U	0.4 U	0.34 U	0.12 J	0.33 U	0.32 U	0.33 U	0.38 U
Fluoranthene	0.35 U	0.4 U	0.34 U	0.15 J	0.33 U	0.32 U	0.33 U	0.092 J
Pyrene	0.35 U	0.4 U	0.34 U	0.12 J	0.33 U	0.32 U	0.33 U	0.077 J
<b>POLYCHLORINATED BIPHENYLS (PCBs)</b>								
<b>Total PCBs</b>	0.136 J	0.008 U	0.32 J	0.39 J	0.0066 U	0.031 J	0.064 J	0.25 J
Aroclor-1248 (PCB-1248)	0.052	0.008 U	0.0069 U	0.0071 U	0.0066 U	0.0065 U	0.0066 U	0.0077 U
Aroclor-1254 (PCB-1254)	0.049 J	0.008 U	0.17 J	0.23 J	0.0066 U	0.018 J	0.036 J	0.13 J
Aroclor-1260 (PCB-1260)	0.035 J	0.008 U	0.15 J	0.16 J	0.0066 U	0.013 J	0.028 J	0.12 J
<b>INORGANIC CONSTITUENTS</b>								
Anitmony	0.6 UJ	0.7 UJ	0.6 UJ	0.6 UJ	0.5 UJ	0.3 UJ	0.5 UJ	0.6 UJ
Arsenic	10.3	16.2	10.6 J	6.5 J	3.3	3.7	7.0	5.7 J
Barium	41.4	228	91.3 J	53.9 J	17.2	18.1	50.8	87.6 J
Cadmium	0.6 U	0.7 U	0.3 U	0.3 U	0.2 U	0.2 U	0.5 U	0.3 U
Chromium	11 J	9	18	9	8	8 J	12	16
Cobalt	4.5	5.8	5.5	2.9	2.4	3.0	5.0	3.8
Copper	9	23	13	14	7 J	6	12 J	20
Iron	14100	9020	16700	9370	5820	12800	19600	8640
Lead	11.2	32.5	41.9	30.6	4.0	6.3	12.7	37.9
Manganese	654	127	469	339	157	326	548	162
Mercury	0.05	0.04 U	0.17	0.24	0.05 U	0.05 U	0.05	0.26
Nickel	7.6	13.2	9.6	7.9	6.1	7.1	10.4	12.1
Selenium	0.6 U	0.7	0.3	0.5	0.4	0.6	0.5 U	0.7
Vanadium	17	28	22	13	8	13	18	13
Zinc	26	22	44	36	18	22	34	55
Cyanide (Total)	0.9			0.9				

Notes :

- All results in milligrams per kilogram (mg/kg)
- Blank Cell - Constituent not analyzed
- J - Estimated
- R - Rejected
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- ft - feet
- BGS - Below Ground Surface

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FORMER PLAINWELL, INC. MILL PROPERTY  
PLAINWELL, MICHIGAN

Redevelopment Area	Residential Area 2	Residential Area 3	Residential Area 3	Residential Area 3				
Sample Location	SB-105	SB-124	SB-126	SB-128	SB-130	MW-15	SB-135	SB-138
Sample Date	1/21/2010	1/21/2010	1/21/2010	1/21/2010	1/25/2010	1/11/2010	1/26/2010	1/26/2010
Sample Depth	(0-1) ft BGS	(0-2) ft BGS	(0-1) ft BGS	(0-1) ft BGS				
<b>Constituent</b>								
<b>Volatile Organic Compounds (VOCs)</b>								
Acetone	0.31 J	R	R	R	R			
Isopropylbenzene	0.24 U	0.27 U	0.24 U	0.23 U	0.26 U	0.25 U	0.24 U	0.24 U
<b>BTEX</b>								
Benzene	0.059 U	0.067 U	0.059 U	0.056 U	0.0089 J	0.061 U	0.060 U	0.059 U
Toluene	0.059 U	0.067 U	0.059 U	0.056 U	0.043 J	0.061 U	0.060 U	0.016 J
o-Xylene	0.059 U	0.011 J	0.059 U	0.056 U	0.029 J	0.061 U	0.060 U	0.059 U
m&p-Xylene	0.059 U	0.016 J	0.059 U	0.056 U	0.038 J	0.061 U	0.060 U	0.059 U
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)</b>								
bis(2-Ethylhexyl)phthalate (DEHP)	0.37 U	0.33 J	0.15 J	0.33 U	0.04 J	0.051 J	0.042 J	0.051 J
Carbazole	0.37 U	0.36 U	0.33 U	0.33 U	0.37 U	0.37 U	0.34 U	0.35 U
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)</b>								
<b>HMW PAHs</b>	0.706	0.602	0.861	0.99	1.527	0.553	0.756	1.05
Benzo(a)anthracene	0.37 U	0.36 U	0.33 U	0.33 U	0.2 J	0.054 J	0.34 U	0.35 U
Benzo(a)pyrene	0.37 U	0.07 J	0.33 U	0.33 U	0.072 J	0.043 J	0.34 U	0.35 U
Chrysene	0.04 J	0.04 J	0.33 U	0.33 U	0.21 J	0.06 J	0.34 U	0.35 U
Dibenz(a,h)anthracene	0.37 U	0.36 U	0.33 U	0.33 U	0.37 U	0.37 U	0.34 U	0.35 U
Fluoranthene	0.064 J	0.076 J	0.036 J	0.33 U	0.48	0.12 J	0.042 J	0.35 U
Pyrene	0.047 J	0.056 J	0.33 U	0.33 U	0.38	0.091 J	0.034 J	0.35 U
<b>POLYCHLORINATED BIPHENYLS (PCBs)</b>								
<b>Total PCBs</b>	0.227 J	0.147 J	0.089 J	0.125 J	0.072 J			
Aroclor-1248 (PCB-1248)	0.0075 U	0.0071 U	0.0067 U	0.0065 U	0.0074 U			
Aroclor-1254 (PCB-1254)	0.13 J	0.081 J	0.051 J	0.067 J	0.072 J			
Aroclor-1260 (PCB-1260)	0.097 J	0.066 J	0.038 J	0.058 J	0.0074 U			
<b>INORGANIC CONSTITUENTS</b>								
Anitmony	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 UJ	0.3 J	0.5 U	0.4 UJ
Arsenic	9.6	8.4 J	6.9	3.9	5.1	19.9	6.6	6.2
Barium	65.6	87.8 J	50.8	21.6	53.2	115 J	56.0	49.7
Cadmium	0.6 U	0.3 U	0.6 U	0.6 U	0.6 U	0.3	0.5 U	0.3 U
Chromium	13	14	14	11	24	13	12	10
Cobalt	5.4	4.8	4.5	5.1	4.2	4.2	3.7	3.6
Copper	18	15	45	14	26 J	28	23	10
Iron	12500	14100	15100	8100	9440	9820	11200	9220 J
Lead	32.0	22.9	45.6	18.2	38.4	63.9	45.0	14.1
Manganese	402	697	410	183	359	543	489	698 J
Mercury	0.07	0.10	0.08	0.05	0.09	0.10	0.21	0.29
Nickel	13.0	10.3	9.2	8.2	9.6	12.8 J	8.0	7.4
Selenium	0.6 U	0.6	0.6 U	0.6 U	0.5	0.8	0.5 U	0.5
Vanadium	15	19	13	16	14	15 J	15	12
Zinc	46	47	47	33	60	92 J	53	30 J
Cyanide (Total)							1.0	

**Notes :**

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Redevelopment Area	Residential Area 3	Residential Area 4						
Sample Location	SB-139	TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	DG1
Sample Date	1/27/2010	3/14/2008	3/14/2008	3/14/2008	3/14/2008	3/14/2008	3/14/2008	4/21/1997
Sample Depth	(0-1) ft BGS	-	-	-	-	-	-	(0-1.5) ft BGS
Constituent								
<b>Volatile Organic Compounds (VOCs)</b>								
Acetone								
Isopropylbenzene	0.28 U							
<b>BTEX</b>								
Benzene	0.069 U							
Toluene	0.069 U							
o-Xylene	0.069 U							
m&p-Xylene	0.069 U							
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)</b>								
bis(2-Ethylhexyl)phthalate (DEHP)	0.35 U							
Carbazole	0.35 U							
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)</b>								
<b>HMW PAHs</b>	0.837							0.0821
Benzo(a)anthracene	0.096 J							0.0095
Benzo(a)pyrene	0.036 J							0.013
Chrysene	0.11 J							0.017
Dibenz(a,h)anthracene	0.35 U							0.0056
Fluoranthene	0.22 J							0.053 U
Pyrene	0.2 J							0.021 U
<b>POLYCHLORINATED BIPHENYLS (PCBs)</b>								
<b>Total PCBs</b>		0.35	0.28	0.04	0.05	0.01	0.08	
Aroclor-1248 (PCB-1248)								
Aroclor-1254 (PCB-1254)								
Aroclor-1260 (PCB-1260)								
<b>INORGANIC CONSTITUENTS</b>								
Anitmony	0.4 J							
Arsenic	12.5							3.6
Barium	94.2							
Cadmium	0.3							0.99
Chromium	36							5.9
Cobalt	5.5							
Copper	24							3.8
Iron	15100 J							
Lead	55.3							7.4
Manganese	637 J							
Mercury	0.42							0.043 U
Nickel	29.3							
Selenium	0.5							0.53 U
Vanadium	17							
Zinc	80 J							27 U
Cyanide (Total)								

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PLAINWELL, MICHIGAN

Redevelopment Area	Residential Area 4						
Sample Location	DG2	DG3	DG4	DG5	SB-7	SB-301	SB-302
Sample Date	4/21/1997	4/21/1997	4/21/1997	4/21/1997	9/5/2006	1/27/2010	1/27/2010
Sample Depth	(0-1.5) ft BGS	(0-1.5) ft BGS	(0-1.5) ft BGS	(0-1.5) ft BGS	(0-0.5) ft BGS	(0-1) ft BGS	(0-1) ft BGS
Constituent							
<b>Volatile Organic Compounds (VOCs)</b>							
Acetone						R	5.5 J
Isopropylbenzene						0.087 J	0.66
<b>BTEX</b>							
Benzene						0.074	1.3
Toluene						1.4	22
o-Xylene						0.89	7.4
m&p-Xylene						1.3	11
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)</b>							
bis(2-Ethylhexyl)phthalate (DEHP)						0.13 J	0.08 J
Carbazole						0.98 U	0.083 J
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)</b>							
<b>HMW PAHs</b>	0.135	26.5	17.15	0.1077	4.346	2.16	2.43
Benzo(a)anthracene	0.02	3.8	0.47	0.013	0.56 J/0.44 J	0.23 J	0.38
Benzo(a)pyrene	0.03	4.9	0.58	0.02	0.35 J/0.34 J	0.27 J	0.36 J
Chrysene	0.019	8.1	5.5	0.016	0.42 J/0.46 J	0.36 J	0.56
Dibenz(a,h)anthracene	0.0045	0.9	6.4	0.0052	0.071 J/0.076 J	0.98 U	0.08 J
Fluoranthene	0.053 U	5.6 U	6 U	0.053 U	1.4/1.4	0.46 J	0.52
Pyrene	0.035	6	2.4 U	0.027	1.2/1.5	0.35 J	0.53
<b>POLYCHLORINATED BIPHENYLS (PCBs)</b>							
<b>Total PCBs</b>						0.066 U	0.4 J
Aroclor-1248 (PCB-1248)						0.066 U	0.072 U
Aroclor-1254 (PCB-1254)						0.066 U	0.2 J
Aroclor-1260 (PCB-1260)						0.066 U	0.2 J
<b>INORGANIC CONSTITUENTS</b>							
Anitmony						1.5 J	1.2 J
Arsenic	4.4	6.8	16	2.7 U	5.8	21.6	6.9
Barium						73.1	151
Cadmium	1.1	1.9	3.9	1	0.27	0.3	0.6
Chromium	5.5	11	28	6.3	7.6	10	12
Cobalt						6	6
Copper	2.6 U	120	220	5	22	40	71
Iron						13100 J	10900 J
Lead	32	140	990	11	41	58.1	99.5
Manganese						296 J	351 J
Mercury	0.049	5.6	1.1	0.043 U	0.28	0.22	0.16
Nickel						12.8	12.0
Selenium	0.53 U	0.56 U	0.6 U	0.53 U	0.5	1.1	1.8
Vanadium						16	14
Zinc	26 U	230	450	27 U	64	75 J	154 J
Cyanide (Total)							0.5

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FORMER PLAINWELL, INC. MILL PROPERTY  
PLAINWELL, MICHIGAN

Redevelopment Area	Residential Area 4	Commercial Area 4				
Sample Location	SB-321	PM8	SB-201	SB-202	SB-203	TP-341
Sample Date	1/27/2010	1/1/2009	1/27/2010	1/27/2010	1/27/2010	5/20/2010
Sample Depth	(0-1) ft BGS	(0.3-0.5) ft BGS	(0-1) ft BGS	(0-1) ft BGS	(0-1) ft BGS	(0.5-1.5) ft BGS
Constituent						
<b>Volatile Organic Compounds (VOCs)</b>						
Acetone	R/R		R	R	R	R
Isopropylbenzene	0.22 U/0.25 U		0.19 U	0.25 U	0.22 U	0.28 U
<b>BTEX</b>						
Benzene	0.054 U/0.061 U		0.0085 J	0.061 U	0.055 U	0.0056 J
Toluene	0.054 U/0.061 U		0.074 U	0.022 J	0.047 J	0.070 U
o-Xylene	0.054 U/0.061 U		0.045 J	0.061 U	0.082	0.057 J
m&p-Xylene	0.054 U/0.061 U		0.071 U	0.061 U	0.096	0.078
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)</b>						
bis(2-Ethylhexyl)phthalate (DEHP)	0.34 U/0.35 U		0.35	0.14 J	0.072 J	0.37 U
Carbazole	0.34 U/0.35 U		R	0.98 U	0.34 UJ	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)</b>						
<b>HMW PAHs</b>	0.791		2.118	2.68	3.216	15.88
Benzo(a)anthracene	0.34 U/0.35 U		0.26 J	0.37 J	0.37	
Benzo(a)pyrene	0.34 U/0.35 U		0.15 J	0.39 J	0.37	
Chrysene	0.34 U/0.35 U		0.35	0.62 J	0.68	2.5
Dibenz(a,h)anthracene	0.34 U/0.35 U		0.058 J	0.98 U	0.056 J	0.88
Fluoranthene	0.048 J/0.044 J		0.78	0.42 J	1	7.7
Pyrene	0.043 J/0.039 J					
<b>POLYCHLORINATED BIPHENYLS (PCBs)</b>						
<b>Total PCBs</b>	0.041 J/0.034 J	0.113				
Aroclor-1248 (PCB-1248)	0.0067 U/0.007 U	0.0652 U				
Aroclor-1254 (PCB-1254)	0.023 J/0.02 J	0.113				
Aroclor-1260 (PCB-1260)	0.018 J/0.014 J	0.0652 U				
<b>INORGANIC CONSTITUENTS</b>						
Anitmony	0.4 UJ/0.3 UJ		2.8 J	0.7 J	0.8 J	3.1 J
Arsenic	7.2/8.1		9.1 J	9.8 J	9.8 J	20.1
Barium	65.1/69.7		480 J	167 J	122 J	500 J
Cadmium	0.3 U/0.3		1.2	0.4	0.3	1.7
Chromium	12/14		13	19	13	40
Cobalt	3.9/4.4		3.4	5.1	4.1	7.7 J
Copper	17/21		194	194	128	308
Iron	10600 J/12200 J		14200 J	14700 J	17300 J	22200 J
Lead	52.0/46.6		359	98.3	182	555
Manganese	541 J/518 J		336 J	354 J	410 J	364 J
Mercury	0.18/0.13		0.42	0.09	0.35	1.29 U
Nickel	8.0/9.4		8.6 J	22.4 J	12.0 J	16.4 J
Selenium	0.7/0.6		0.6	1	0.8	1.5
Vanadium	15/18		14	26	18	25
Zinc	110 J/87 J		668 J	207 J	151 J	764 J
Cyanide (Total)	1.7/1.8		1.5			

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